

LCLUC Abstract

Hierarchical Investigation of Socioeconomic Drivers of Decadal Scale Land-Cover Changes in the Upper Midwest

<<http://www.msu.edu/user/brownda/research/nasa.html>>

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This project examines changes in land cover patterns as a function of socioeconomic changes, dispersed development, and subsequent changes in the spatial patterns of land ownership in the Upper Midwest (defined to include forested regions of Michigan, Minnesota, and Wisconsin). Spatial patterns of land ownership (i.e., parcel size and pattern) and their trajectories through time provide a critical link in understanding the environmental implications (i.e., LCLUC) of societal and economic factors. This project will involve (a) mapping multi-temporal patterns of land cover from historical aerial photographs (at resolutions similar to the TRW/Lewis and CTA/Clark panchromatic data) and NASA Pathfinder data (i.e., North American Landscape Characterization--NALC) and (b) modeling rates and types of change in land cover patterns as functions of rates of change in land ownership patterns and socioeconomic factors.

Spatial and temporal exploratory statistical analyses will be used to quantify the relationships between socioeconomic processes, changes in the patterns of land ownership and cover patterns observed for a set of 136 area frame samples throughout the region. The observed relationships will be used to parameterize a GIS-based, spatial-temporal model of land use/cover and pattern change. The predictive ability of the spatial-temporal model will be assessed at the pixel, site, county, and regional scales using NALC MSS triplets.

